

Solutions Worksheet

- Define the following terms:
 - Solubility
 - Supersaturated
 - concentration
- State Henry's Law.
- At 20°C, argon has a solubility in water of 62 mg/L at 760 torr. How much argon will dissolve at a pressure of 4180 torr at 20°C?
- Two sealed soda pop cans contain a soft drink under pressure. One of the cans is placed in the refrigerator at 5°C. The other can is placed on the outdoor table at 32°C. After two hours, both of the cans are opened. Which one is more likely to have foam from the soft drink spill out? Explain your answer.
- Describe how to prepare 400 grams of a 15% (mass/mass) aqueous solution of KBr.
- Describe how to prepare 500 mL of a 70% (volume/volume) aqueous solution of acetic acid.
- A solution is prepared by dissolving 22.7 g NaCN in enough water to make 250 mL of solution. What is the molarity?
- Describe how to prepare 500 mL of 0.25 M KCl.
- 150 mL of 0.05 M HCl is diluted to 750 mL. What is the new molarity?
- A solution of 0.25 M NaOH is used to prepare 0.1 M NaOH. How much of the 0.25 M solution is needed to prepare 500 mL of the diluted NaOH?
- The freezing point of a solution that contains 1.00 g of an unknown compound dissolved in 10.0 g of benzene is found to be 2.07 C°. The freezing point of pure benzene is 5.48 C°. The molal freezing point depression constant of benzene is 5.12 C°/molal. What is the molar mass of the unknown compound?
- Boiling point elevation could be used for determinations of molar mass. What are two problems with using boiling point instead of freezing point?
- Further investigation of the compound described in problem 30 shows that it is actually an electrolyte, although the number of particles formed is not yet known. What effect will this information have on acceptance of the calculated molar mass?